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LTD. and  
SEOUL VIOSYS CO., LTD.

**UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA**

SEOUL SEMICONDUCTOR CO.,  
LTD., a Korean corporation, SEOUL  
VIOSYS CO., LTD., a Korean  
corporation,

Plaintiffs,

v.

BED BATH & BEYOND, INC., a New  
Jersey corporation,

Defendant.

Case No. 2:18-cv-03837-SJO-SK

**DECLARATION OF  
PROFESSOR STEVEN  
DENBAARS IN SUPPORT OF  
PLAINTIFFS' OPENING  
CLAIM CONSTRUCTION  
BRIEF**

Complaint Filed: May 8, 2018

**DECLARATION OF PROFESSOR STEVEN DENBAARS**

I, Professor Steven DenBaars, hereby declare the following:

1. I am over the age of 18 and have personal knowledge of the matters stated herein. I could truthfully testify thereto if called upon as a witness.

2. I have been retained by Plaintiffs Seoul Semiconductor Co., Ltd. and Seoul Viosys Co., Ltd. ("Plaintiffs") to provide testimony and opinions regarding light emitting diode (LED) technology. In particular, I have been asked to provide a summary of my knowledge regarding certain technical terms at issue for purposes of claim construction in this case.

3. I will provide a summary of my relevant background and experience. Then I will summarize my relevant conclusions.

4. I am a Professor at the University of California, Santa Barbara in the Engineering Department. My current title is the Mitsubishi Distinguished Professor of Materials and Electrical & Computer Engineering.

5. I received a Bachelors of Science in Materials and Metallurgical Engineering from the University of Arizona in 1984 and was the valedictorian of my graduating class. I then received a Masters in Science in Materials Science in 1986 from the University of Southern California. I completed my formal education in 1988 when I received a Doctorate in Electrical Engineering from the University of Southern California.

6. Following three years in industry performing LED research at Hewlett-Packard, I began my teaching career in 1991 as an Assistance Professor at the University of California, Santa Barbara. I became a full professor in 1998 and retain that position today. In addition, starting in 2002 I became the Executive Director of the Solid State Lighting and Display Center at the University of California, Santa Barbara, which evolved into the Solid State Lighting and Energy Center.

7. During the course of my career I have received a number of awards and recognitions. In 1994 I was a recipient of the National Scientist Foundation Young

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Investigator Award. In 2005 I received the Fellow Award from the Institute of Electrical and Electronics Engineering (IEEE). In 2010 I received the Aron Kressel Award from the Institute of Electrical and Electronics Engineers (IEEE) Photonics Society for “pioneering work in the development of high-efficiency nonpolar and semipolar nitride-based materials and devices for solid state lighting.” And most recently, in 2014 I became a Fellow of the National Academy of Inventors.

8. I have been an author on more than 800 publications and a named inventor on more than 500 patents and patent applications worldwide on behalf of the University of California.


9. Over the course of my thirty-year career, my research has focused on the growth and properties of wide bandgap semiconductors. Gallium nitride (GaN), a wide bandgap semiconductor prized for its ability to generate blue light, has become a foundation of modern LED-based lighting.

10. Over the course of my career, the LED industry has been characterized by a relentless pursuit of improvements in the efficiency and quality of light.

11. Quantum dots are one of the technologies that the industry has pursued. Quantum dots are incredibly small aggregations of semiconductor material. Given their extremely small size, quantum dots are included in a class of materials known as nanoscale, which refers to the fact that they can be measured in nanometers (0.000001 mm). The defining characteristics of quantum dots are their composition (semiconductor material) and their size (nanoscale).

I declare under penalty of perjury and under the laws of the United States that the foregoing is true and correct.

Date: May 16, 2019



Prof. Steven DenBaars